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| 09/965,429 | 09/27/2001 | Salah Obied | 47079-0105 | 3630 |

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| EXAMINER |
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FOWLKES, ANDRE R

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| ART UNIT | PAPER NUMBER |
| 2122 | |

DATE MAILED: 01/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/965,429 | OBIED ET AL. | |
| | Examiner | Art Unit | |
| | Andre R. Fowlkes | 2122 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-13,15-24 and 26-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-13,15-24 and 26-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 September 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to the amendment filed 10/21/04.

Drawings

2. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because the drawings are informal. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. Claims 1, 2, 4-13, 15-24 and 26-36 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 1, 13, 24, 35 and 36 contain the limitation "generating software code ... in real-time", (e.g. claim 1, lines 8-10). There is no support given, from the original disclosure, for this limitation.

Applicant may attempt to demonstrate that the original disclosure establishes that he or she was in possession of the amended subject matter or provide the page and line numbers, from the specification, in support of each change in the amended claims.

Claims 4-12, 15-23 and 26-34 are also rejected as being dependent on a rejected base claim.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 2, 4-13, 15-24 and 26-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Quatrani, "Visual Modeling with Rational Rose 2000 and UML", ISBN: 0-201-69961-3 in view of the online brochure "Accelerating Embedded e-development", located at <www.ghs.com/partners/rational/rose-rt.pdf>.

As per claim 1, Quatrani discloses: a **method for generating software code** for an application (p. 16 line 7-8, "the Rational Rose product family is designed to provide the software developer with a complete set of visual modeling tools for development of ... (software solutions)"), **comprising:**

- **preparing an analysis model for the application, the analysis model describing functionality to be included in the software code** (p. 13 line 15 – p. 14 line 5, "Structuring the project (using the software development tool) ... includes the following activities:

- Requirements-a narration of the system vision along with a set of functional and non functional requirements (i.e. an analysis model)"

- **preparing a design model for the application, the design model including a plurality of objects for realizing the functionality in the analysis model** (p. 13 line 15 – p. 14 line 5, "Structuring the project (using the software development tool) ... includes the following activities:

- Business Modeling-the identification of desired system capabilities and user needs (and objects)

- Analysis and Design (Models)- a description of how the system will be realized in the implementation phase (including a plurality of objects)"

- **wherein the design model defines static relationships between the objects and dynamic behavior of the objects**, (p. 36 line 2-5, "uses cases and scenarios (i.e. object model diagrams) provide a way to describe (static) system behavior; that is, the interaction between objects in the system ...A state chart diagram shows the ... events or messages that cause a transition from one state to another, and the actions that result from a state change (i.e. dynamic relationships between objects)"

- **generating software code for the application from the design model, the software code including at least a portion that is automatically generated in real-time using a software development tool** (p. 13 line 15 – p. 14 line 5, "Structuring the project (using the software development tool) ... includes the following activities:

-Implementation- the production of the code, (automatically from the design model) ,that will result in an executable system", and the compiler responds to the

request to produce code nearly simultaneously with the corresponding input (i.e. in real time)).

- wherein the automatically generated portion of the software code including the static relationships between the objects and the dynamic behavior of the objects (p. 13 line 15 – p. 14 line 5, “Structuring the project ... includes:

- Analysis and Design (Models)- a description of how the system will be realized in the implementation phase (i.e. static and dynamic relationship models)

-Implementation-the production of the code (from the static and dynamic relationship models) that will result in an executable system”).

Quatrani doesn't explicitly disclose a method for generating **real-time embedded** software code for an application.

However, Accelerating Embedded e-development, in an analogous environment, discloses a method for generating **real-time embedded** software code for an application (p. 1 col. L, lines 14-17 ,”Rational Rose ® RealTime is a complete Unified Modeling Language development environment expressly created to meet these real-time (software development) challenges”).

Therefore, it would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to incorporate the teachings of Accelerating Embedded e-development into the system of Quatrani to have a method for generating **real-time embedded** software code for an application. The modification would have been obvious because one of ordinary skill in the art would have wanted a way of

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quickly developing high quality real time embedded software applications, (Accelerating Embedded e-development, p. 1 col. L, lines 1-17).

As per claim 2, the rejection of claim 1 is incorporated and further, Quatrani discloses that **the analysis model, the design model, and the software code are prepared using the software development tool** (p. 13 line 15 – p. 14 line 5, “Structuring the project (using the software development tool) ... includes the following activities:

- Business Modeling-the identification of desired system capabilities and user needs
- Requirements-a narration of the system vision along with a set of functional and non functional requirements
- Analysis and Design (Models)- a description of how the system will be realized in the implementation phase
- Implementation-the production of the code that will result in an executable system”).

As per claim 4, the rejection of claim 3 is incorporated and further, Quatrani discloses that **the design model includes object model diagrams and state charts, the object model diagrams defining the static relationships between the objects** (p. 36 line 2-3, “uses cases and scenarios (i.e. object model diagrams) provide a way to describe (static) system behavior; that is, the interaction between objects in the

system”), **the state charts defining the dynamic behavior of the objects** (p. 36 line 4-5, “A state chart diagram shows the ... events or messages that cause a transition from one state to another, and the actions that result from a state change”).

As per claim 5, the rejection of claim 1 is incorporated and further, Quatrani discloses that **the functionality described by the analysis model is organized into use cases** (p. 20 line 2-3, “The behavior of the system under development (i.e., what functionality must be provided by the system (the analysis model)) is documented in a use case model that illustrates the system’s intended functions (use cases)”).

As per claim 6, the rejection of claim 5 is incorporated and further, Quatrani discloses that **the analysis model includes use case diagrams and sequence diagrams** (p. 24 line 2-5, “sequence diagram ... use case), **the use case diagrams defining relationships between the use cases and external actors outside the software application, the sequence diagrams defining a sequence of interactions between the use cases and the external actors** (p. 24 line 2-5, “A sequence diagram shows object interactions, (e.g. interactions between use case and the external actors), arranged in time sequence. It depicts the objects and classes involved in the scenario and the sequence of messages exchanged between the objects needed to carry out the functionality of the scenario. Sequence diagram typically are associated with the use case realizations, (which define relationships between the use cases and external actors), in the logical view of the system under development.”).

As per claim 7, the rejection of claim 1 is incorporated and further, Quatrani discloses that **the analysis model and the design model conform to the Unified Modeling Language (UML) standard** (p. 10 line 10-11, "The Unified Modeling Language (UML) provides a very robust notation which grows from analysis into design (modeling)").

As per claim 8, the rejection of claim 1 is incorporated and further, the additional limitation of this claim, (that the application created using this system is a **slot reel game including a plurality of symbol-bearing reels that are rotated and stopped to place symbols on the reels in visual association with a display area**), is directed toward non-functional descriptive material, in that the specific type of software created with this software development system is merely non-functional descriptive material. Non functional descriptive material cannot render non-obvious an invention that would have otherwise been obvious (In re Gullack, 703 F.2d 1381, 1385, 217 USPQ 401, 404 (Fed.Circ. 1983)).

As per claim 9, the rejection of claim 1 is incorporated and further, Quatrani discloses that **the software code includes another portion that is manually prepared** (p. 18 line 22, "use round-trip engineering facilities to (automatically) keep your designs synchronized with your (manual and automatically generated) code").

As per claim 10, the rejection of claim 9 is incorporated and further, Quatrani discloses that **the objects are associated with operations** (p. 22 line 10, "(object) behavior is implemented by the set operations for the object"), **the manually prepared portion of the software code defining the operations** (p. 18 line 22, "use round-trip engineering facilities to (automatically) keep your designs synchronized with your (manual and automatically generated) code", and the user chooses which code to prepare manually).

As per claim 11, the rejection of claim 1 is incorporated and further, Quatrani discloses the step of **modifying the design model and automatically modifying the software code in response to modifying the design model** (p. 18 line 22, "use round-trip engineering facilities to (automatically) keep your designs synchronized with your code").

As per claim 12, the rejection of claim 1 is incorporated and further, Quatrani discloses **modifying the software code and automatically modifying the design model in response to modifying the software code** (p. 18 line 22, "use round-trip engineering facilities to (automatically) keep your designs synchronized with your code").

As per claims 13 & 15-23, this is an apparatus version of the claimed method discussed above, in claims 1, 2 & 4-12, wherein all claimed limitations have also been

addressed and/or cited as set forth above. For example, see Quatrani's Visual Modeling with Rational Rose 2000 and UML (p. 10 line 10 – 36 line 5) and Accelerating Embedded e-development: Rational Rose Realtime figure on p. 2, and associated text.

As per claims 24 & 26-34, this is a product version of the claimed method discussed above, in claims 1, 2 & 4-12, wherein all claimed limitations have also been addressed and/or cited as set forth above. For example, see Quatrani's Visual Modeling with Rational Rose 2000 and UML (p. 10 line 10 – 36 line 5) and Accelerating Embedded e-development: Rational Rose Realtime figure on p. 2, and associated text.

As per claims 35, this is another method version of the claimed method discussed above, in claims 1, & 11, wherein all claimed limitations have also been addressed and/or cited as set forth above. For example, see Quatrani's Visual Modeling with Rational Rose 2000 and UML (p. 10 line 10 – 36 line 5) and Accelerating Embedded e-development: Rational Rose Realtime figure on p. 2, and associated text.

As per claims 36, this is another method version of the claimed method discussed above, in claims 1 & 12, wherein all claimed limitations have also been addressed and/or cited as set forth above. For example, see Quatrani's Visual Modeling with Rational Rose 2000 and UML (p. 10 line 10 – 36 line 5) and Accelerating Embedded e-development: Rational Rose Realtime figure on p. 2, and associated text.

Response to Arguments

6. Applicants arguments have been considered but they are not persuasive.

In the remarks, the applicant has argued substantially that:

1) Neither Quatrani nor Accelerating, alone or in combination disclose the automatic generation of software code in real time, at p. 10:6-17, p. 11:12-13 & 12:12-13.

Examiner's response:

1) The examiner disagrees with applicant's characterization of the applied art. Accelerating discloses, at p.1, col. R line 8, "automated code generation" for a design model using a design model compiler, and the code is generated in real time (i.e. the compiler responds to the request to generate code nearly simultaneously with the corresponding input).

In the remarks, the applicant has argued substantially that:

2) Neither Quatrani nor Accelerating, alone or in combination disclose that the automatically generated code portion includes static relationships between the objects and the dynamic behavior of the objects, at p. 10:6-19.

Examiner's response:

2) The examiner disagrees with applicant's characterization of the applied art. Quatrani discloses that "uses cases and scenarios (i.e. object model diagrams) provide a way to describe (static) system behavior; that is, the interaction between objects in the system ... A state chart diagram shows the ... events or messages that cause a transition from one state to another, and the actions that result from a state change (i.e. dynamic relationships between objects)", at p. 36 line 2-5.

In the remarks, the applicant has argued substantially that:

3) Neither Quatrani nor Accelerating, alone or in combination disclose preparing an analysis model for a game of chance, preparing a design model for a game of chance or generating software code for a game of chance, at p. 10:20-23, p. 11:13-14 & p. 12:13-14.

Examiner's response:

3) The Quatrani/Accelerating combination discloses preparing an analysis model, preparing a design model and generating software for a software application (i.e. game of chance). The limitation, "for a game of chance", is directed toward non-functional descriptive material, in that the specific type of software created with this software development system is merely non-functional descriptive material. Non functional descriptive material cannot render non-obvious an invention that would have otherwise

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been obvious (In re Gullack, 703 F.2d 1381, 1385, 217 USPQ 401, 404 (Fed.Circ. 1983)).

In the remarks, the applicant has argued substantially that:

4) Neither Quatrani nor Accelerating, alone or in combination disclose modifying the design model and automatically modifying the software code in response to the modifying of the design model, at p. 11:15-25 & p. 12:15-18

Examiner's response:

4) The examiner disagrees with the applicant's characterization of the applied art. Accelerating discloses, at p.1, col. R line 8, "automated code generation" for a design model. Additionally, at p. 2 line 1, Accelerating discloses an "iterative development" process (i.e. automatically modifying the software code in response to modifying the design model) which is also displayed in the flow diagram on p. 2, "Advanced model compiler generates complete real-time C++ and C executables directly from your design models". Additionally, Quatrani discloses on p. 18 line 22, "use round-trip engineering facilities to (automatically) keep your designs synchronized with your code (and keep code synchronized with the designs)".

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andre R. Fowlkes whose telephone number is (571) 272-3697. The examiner can normally be reached on Monday - Friday, 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam can be reached on (571)272-3695. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ARF



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